Powerware 9140
Extended Battery Module (EBM)
User's Guide

For use with the Powerware 9140 7.5–10 kVA UPS Models

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Special Symbols

The following are examples of symbols used on the UPS or accessories to alert you to important information:

RISK OF ELECTRIC SHOCK - Indicates that a risk of electric shock is present and the associated warning should be observed.

CAUTION: REFER TO OPERATOR'S MANUAL - Refer to your operator's manual for additional information, such as important operating and maintenance instructions.

This symbol indicates that you should not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

This symbol indicates that you should not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

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Chapter 1 Introduction

The Extended Battery Module (EBM) can be added to the Powerware® 9140 uninterruptible power system (UPS) to extend the available battery time (see Table 1). Up to four EBMs can be installed with the Powerware 9140 UPS.

Table 1. Battery Runtimes (in Minutes)

Load (10 kVA Models)	UPS Internal Batteries	+1 EBM	+2 EBMs	+3 EBMs	+4 EBMs
100% Load	5	12	27	35	45
75% Load	7	17	35	46	60
50% Load	12	27	52	69	90
25% Load	31	61	99	138	181
Load (7.5 kVA Models)	**UPS Internal Batteries**	**+1 EBM**	**+2 EBMs**	**+3 EBMs**	**+4 EBMs**
100% Load	8.5	23.5	37.5	53	65.5
75% Load	12	30	52	69	86.5
50% Load	22	51.5	78.5	98.5	111
25% Load	48	94	116	>120	>180

NOTE Battery times are approximate and vary depending on the load configuration and battery charge.

Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the EBM. Please read all instructions before operating the equipment and save this manual for future reference.

WARNING

This UPS contains its own energy source (batteries). The UPS output receptacles may carry live voltage even when the UPS is not connected to an AC supply.

CAUTION

- Batteries can present a risk of electrical shock or burn from high short-circuit current. Observe proper precautions. Servicing should be performed by qualified service personnel knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Never dispose of batteries in a fire. Batteries may explode when exposed to flame.

Sikkerhedsanvisninger

VIGTIGE SIKKERHEDSANVISNINGER
GEM DISSE ANVISNINGER

Denne manual indeholder vigtige instruktioner, som skal følges under installation og betjening af EBM-enheden. Læs venligst alle instruktioner inden betjening af udstyret og gem denne manual mhp. fremtidige opslag.

ADVARSEL!

Denne UPS indeholder sin egen energikilde (batterier). Udgangsstikkene kan endog være strømførende, når UPS'en ikke er koblet til en vekselstrømsforsyning.

ADVARSEL

- Batterierne kan give risiko for elektrisk stød eller brandsår forårsaget af høj kortslutningsstrøm. Overhold gældende forsigtighedsregler. Servicering skal udføres af kvalificeret servicepersonale med kendskab til batterier og gældende forsigtighedsregler. Hold uautoriseret personale væk fra batterierne.
- Korrekt bortskaffelse af batterier er påkrævet. Overhold gældende lokale regler for bortskaffelsesprocedurer.
- Skaf dig aldrig af med batterierne ved at brænde dem. Batterierne kan eksplodere ved åben ild.

Belangrijke Veiligheidsinstructies

BELANGRIJKE VEILIGHEIDSINSTRUCTIES
BEWAAR DEZE INSTRUCTIES

Deze handleiding bevat belangrijke instructies die u dient te volgen tijdens de installatie en het gebruik van EBM. Lees alle instructies voordat u de apparatuur in bedrijf neemt en bewaar deze handleiding als naslagwerk.

WAARSCHUWING

Deze UPS bevat een eigen energiebron (batterijen). De uitgangscontactdoos kan onder spanning staan, zelfs wanneer de UPS niet is aangesloten op de netspanning.

OPGELET

- Batterijen leveren gevaar op voor elektrische schokken en kunnen brandwonden veroorzaken door een grote kortsluitstroom. Neem de juiste voorzorgsmaatregelen in acht. Het onderhoud moet worden uitgevoerd door bevoegde onderhoudsmonteurs die verstand hebben van accu's en op de hoogte zijn van de vereiste voorzorgsmaatregelen. Houd onbevoegden uit de buurt van de accu's.
- De batterijen moeten op de juiste wijze worden opgeruimd. Raadpleeg hiervoor uw plaatselijke voorschriften.
- Nooit batterijen in het vuur gooien. De batterijen kunnen ontploffen.

Tarkeita Turvaohjeita

TÄRKEITÄ TURVAOHJEITA - SUOMI
SÄILYTÄ NÄMÄ OHJEET

Tämä käyttöohje sisältää tärkeitä ohjeita, joita on noudatettava EBM-yksikön asennuksen ja käytön yhteydessä. Lue kaikki ohjeet ennen laitteiston käyttöä ja säilytä ohje myöhempää tarvetta varten.

VAROITUS

Tässä UPS-virtalähteessä on oma energianlähde (akut). Lähtövastakkeissa voi olla jännite, vaikka UPS-virtalähdettä ei ole kytketty verkkovirtaan.

VARO

- Akut voivat aiheuttaa sähköiskun tai palovammojen vaaran johtuen suuresta oikosulkuvirrasta. Noudata kaikkia asianmukaisia varotoimia. Laitteen saa huoltaa vain ammattitaitoinen huoltohenkilökunta, joka tuntee akut ja niihin liittyvät varotoimet. Älä päästä valtuuttamatonta henkilöstöä lähelle akkuja.
- Akusto täytyy hävittää säädösten mukaisella tavalla. Noudata paikallisia määräyksiä.
- Älä koskaan heitä akkuja tuleen. Ne voivat räjähtää.

Consignes de Sécurité

CONSIGNES DE SÉCURITÉ IMPORTANTES
CONSERVER CES INSTRUCTIONS

Ce manuel contient des instructions importantes que vous êtes invité à suivre lors de toute procédure d'installation et de fonctionnement de l'EBM. Veuillez consulter entièrement ces instructions avant de faire fonctionner l'équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.

AVERTISSEMENT!

Cette onduleur possède sa propre source d'alimentation (batteries). Il est possible que les prises de sortie soient sous tension même lorsque l'onduleur n'est pas connectée à une alimentation CA.

ATTENTION!

- Les batteries peuvent présenter un risque de choc électrique ou de brûlure provenant d'un courant de court-circuit haute intensité. Observez les précautions appropriées. L'entretien doit être réalisé par du personnel qualifié connaissant bien les batteries et les précautions nécessaires. N'autorisez aucun personnel non qualifié à manipuler les batteries.
- Une mise au rebut réglementaire des batteries est obligatoire. Consulter les règlements en vigueur dans votre localité.
- Ne jamais jeter les batteries au feu. L'exposition aux flammes risque de les faire exploser.

Sicherheitswarnungen

WICHTIGE SICHERHEITSANWEISUNGEN AUFBEWAREN

Dieses Handbuch enthält wichtige Hinweise, welche Sie bei der Installation und Wartung des EBM beachten sollten. Bitte lesen Sie alle Anweisungen des Handbuches bevor sie mit dem Gerät arbeiten. Bewaren Sie das Handbuch zum Nachlesen auf.

ACHTUNG

Dieses UPS (Unterbrechungsfreies Stromversorgungssystem - USV) enthält eine eigene Energiequelle (Batterien). Die Ausgangssteckdosen können Spannung führen, auch wenn das UPS (USV) nicht an eine Wechselstromquelle angeschlossen ist.

VORSICHT!

- Batterien können das Risiko eines elektrischen Schlags bergen oder durch hohen Kurzschlussstrom in Brand geraten. Die richtigen Vorsichtsmaßnahmen beachten. Die Wartung muss von qualifiziertem Wartungspersonal durchgeführt werden, das im Umgang mit Batterien geübt ist und über gute Kenntnisse der erforderlichen Vorsichtsmaßnahmen verfügt. Nicht autorisiertes Personal von Batterien fern halten.
- Die Batterien müssen ordnungsgemäß entsorgt werden. Hierbei sind die örtlichen Bestimmungen zu beachten.
- Batterien niemals verbrennen, da sie explodieren können.

Avvisi di Sicurezza

IMPORTANTI ISTRUZIONI DI SICUREZZA
CONSERVARE QUESTE ISTRUZIONI

Il presente manuale contiene importanti istruzioni da seguire durante l'installazione e il funzionamento di EBM. Leggere integralmente le istruzioni prima di utilizzare l'apparecchiatura e conservare il presente manuale per futuro riferimento.

AVVERTENZA

L'UPS contiene la propria fonte di energia (batterie). Le prese d'uscita possono essere sotto tensione anche quando l'UPS non è collegato all'alimentazione elettrica CA.

ATTENZIONE

- Le batterie possono comportare un rischio di scossa elettrica o di ustione in seguito a un'elevata corrente di corto circuito. Osservare le dovute precauzioni. L'assistenza deve essere eseguita da personale qualificato esperto di batterie e delle necessarie precauzioni. Tenere il personale non autorizzato lontano dalle batterie.
- Le batterie devono essere smaltite in modo corretto. Per i requisiti di smaltimento fare riferimento alle disposizioni locali.
- Non gettare mai le batterie nel fuoco poichè potrebbero esplodere se esposte alle fiamme.

Viktig Sikkerhetsinformasion

VIKTIGE SIKKERHETSINSTRUKSJONER
GJEM DISSE INSTRUKSJONENE

Denne håndboken inneholder viktige instruksjoner som du bør overholde ved montering og bruk av EBM. Les alle instruksjoner før utstyret tas i bruk, og gjem håndboken til fremtidig referanse.

FARLIG

UPS-enheten inneholder sin egen energikilde (batterier). Utgangsstikkene kan være strømførende selv når UPS-enheten ikke er koblet til et strømuttak.

FORSIKTIG

- Batterier kan utgjøre en fare for elektrisk støt eller brannsår pga. høy kortsluttingsstrøm. Treff passende forholdsregler. Service bør utføres av kvalifisert servicepersonale med kjennskap til batterier og nødvendige forholdsregler. Hold uautorisert personale borte fra batteriene.
- Batterier må fjernes på korrekt måte. Se lokale forskrifter vedrørende krav om fjerning av batterier.
- Kast aldri batterier i flammer, da de kan eksplodere, hvis de utsettes for åpen ild.

Regulamentos de Segurança

INSTRUÇÕES DE SEGURANÇA IMPORTANTES
GUARDE ESTAS INSTRUÇÕES

Este manual contém instruções importantes que devem ser seguidas durante a instalação e operação da EBM (Produção de energia elétrica por indução magnética). Leia todas as instruções antes de operar o equipamento e guarde este manual para consultá-lo futuramente.

ADVERTÊNCIA

Este no-break possui sua própria fonte de energia (baterias). As tomadas de saída podem estar energizadas mesmo que o no-break não esteja conectado a uma fonte de energia elétrica.

PERIGO

- As baterias podem oferecer risco de choque elétrico ou queimadura, ocasionados por alta tensão com possibilidade de curto-circuito. Tome as precauções adequadas. A manutenção deve ser realizada por pessoal qualificado, com conhecimento sobre baterias e ciente das precauções exigidas. Mantenha o pessoal não autorizado afastado das baterias.
- Siga as instruções apropriadas ao desfazer-se das baterias. Consulte os códigos do local para maiores informações sobre os regulamentos de descarte de produtos.
- Nunca jogue as baterias no fogo, porque há risco de explosão.

Предупреждения по мерам безопасности

ВАЖНЫЕ УКАЗАНИЯ ПО МЕРАМ БЕЗОПАСНОСТИ СОХРАНИТЕ ЭТИ УКАЗАНИЯ

В данном руководстве содержатся важные инструкции по установке и обслуживанию внешнего батарейного модуля или устройства распределения электропитания. Перед работой с оборудованием прочтите все инструкции. Сохраните данное руководство для дальнейшего использования.

ПРЕДУПРЕЖДЕНИЕ

В данном ИБП установлены собственные источники энергии (батареи). На выходных розетках может быть напряжение, даже если ИБП не подключен к сети переменного тока.

ОСТОРОЖНО

- Высокое напряжение, вызванное коротким замыканием в батарее, может привести к поражению электрическим током или ожогу. Соблюдайте меры предосторожности. Техническое обслуживание должно осуществляться квалифицированным персоналом по работе с источниками питания, знакомым с мерами предосторожности. Не допускайте к работе с батареями посторонних.
- Необходимо соблюдать правила утилизации аккумуляторов. Обратитесь к местным нормативным актам за информацией о требованиях к утилизации.
- Никогда не бросайте аккумуляторы в огонь. Аккумуляторы могут взорваться под воздействием огня.

Advertencias de Seguridad

INSTRUCCIONES DE SEGURIDAD IMPORTANTES GUARDE ESTAS INSTRUCCIONES

Este manual contiene instrucciones importantes que debe seguir durante la instalación y el funcionamiento del EBM. Por favor, lea todas las instrucciones antes de poner en funcionamiento el equipo y guarde este manual para referencia en el futuro.

ADVERTENCIA

Este SIE contiene su propia fuente de energía (baterías). Los receptáculos de salida pueden transportar voltaje activo aun cuando el SIE no esté conectado con una fuente de CA.

PRECAUCIÓN

- Las baterías pueden constituir un riesgo de descarga eléctrica o quemaduras por corriente alta de corto circuito. Adopte las precauciones debidas. Personal calificado de servicio que conozca de baterías y esté al tanto de las precauciones requeridas debe darle servicio al equipo. Mantenga al personal no autorizado alejado de las baterías.
- Es necesario desechar las baterías de un modo adecuado. Consulte las normas locales para conocer los requisitos pertinentes.
- Nunca deseche las baterías en el fuego. Las baterías pueden explotar si se las expone a la llama.

Säkerhetsföreskrifter

VIKTIGA SÄKERHETSFÖRESKRIFTER
SPARA DESSA FÖRESKRIFTER

Den här anvisningen innehåller viktiga instruktioner som du ska följa under installation och användning av EBM. Läs alla instruktioner innan du använder utrustningen och spara den här anvisningen för framtida referens.

VARNING

Den här UPS-enheten innehåller sin egen energikälla (batterier). Uttagen kan vara spänningsförande även då UPS-enheten inte är ansluten till spänningsnätet.

VIKTIGT

- Batterierna kan innebära en risk för elektrisk stöt eller brännskada från kortsluten starkström. Iakttag lämpliga försiktighetsåtgärder. Service ska utföras av utbildad servicepersonal med kunskap om batterierna och nödvändiga försiktighetsåtgärder. Håll ej behörig personal borta från batterierna.
- Batterierna måste avyttras enligt anvisningarna i lokal lagstiftning.
- Använda batterier får aldrig brännas upp. De kan explodera.

Chapter 2 Installation

NOTE *If you are installing the UPS and the Extended Battery Module (EBM) together, follow the installation instructions in the UPS user's guide.*

This section explains:

- Equipment inspection
- Unpacking the cabinet
- EBM setup and installation, including EBM batteries

Inspecting the Equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage: 1) File with the carrier within 15 days of receipt of the equipment; 2) Send a copy of the damage claim within 15 days to your service representative.

NOTE *Check the battery recharge date on the shipping carton label. If the date has expired and the batteries were never recharged, do not use the UPS. Contact your service representative.*

Unpacking the Cabinet

CAUTION

Unpacking the cabinet in a low-temperature environment may cause condensation to occur in and on the cabinet. Do not install the cabinet until the inside and outside of the cabinet are absolutely dry (hazard of electric shock).

To unpack the cabinet and accessories:

1. Cut the pallet straps and remove the large cardboard outer sleeve. Have two people lift the sleeve for ease of removal.
2. The cabinet, batteries, and accessory kit are packaged in individual cartons. Do not install the batteries until after the cabinet is installed in the rack.

   Use care when moving and opening the cartons. Leave the components packaged until ready to install.
3. Discard or recycle the packaging in a responsible manner, or store it for future use.

Follow these guidelines when locating the cabinet after unpacking:

- Place the cabinet in a protected area that has adequate airflow and is free of humidity, flammable gas, and corrosion.
- Avoid placing the cabinet on its side. Make sure the air vents on the front and rear of the cabinet are not blocked.
- The recommended configuration is to install the EBM(s) in the lower part of the rack, with the UPS directly above the EBM(s).

Continue to the following section, "EBM Setup."

EBM Setup

The Powerware 9140 EBM comes with all hardware required for installation in a standard EIA or JIS seismic rack-mount configuration with square or round mounting holes. The rail assemblies adjust to mount in 19-inch panel racks from 24 to 30 inches deep.

Checking the EBM Accessory Kit

Verify that the following items are included with the EBM:

- Mounting brackets and fasteners (if not already installed):
  - (2) front mounting brackets
  - (2) rear mounting brackets
  - (12) M4 flat-head screws, plus (2) extra
- Rails and fasteners:
  - (2) sliding rail assemblies (left and right)
  - (4) adapter plates (for 7.1 mm round hole)
  - (4) adapter plates (for 9.5 mm square hole)
  - (16) M5 machine screws, plus (2) extra
  - (2) M6 machine screws, plus (2) extra
  - (2) M6 clip nuts for racks with round holes, plus (2) extra
  - (2) M6 cage nuts for racks with square holes, plus (2) extra
  - (8) M4 machine screws with (8) M4 locknuts, plus (2) extra of each
- EBM user's guide
- Optional seismic mounting brackets and fasteners:
  - (2) EBM seismic mounting brackets
  - (4) wing bolts, plus (1) extra
  - (4) M6 machine screws

NOTE *Discard the EBM user's guide if you are installing the EBM with a new UPS at the same time. Use the UPS user's guide instead to install both the UPS and the EBM.*

Rack Setup for the EBM

NOTE *Mounting rails are required for each individual cabinet.*

NOTE *The recommended configuration is to install the EBM(s) in the lower part of the rack, with the UPS directly above the EBM(s).*

To install the EBM rail kit:

1. Select the proper holes in the rack for positioning the EBM in the rack (see Figure 1).

NOTE *The EBM takes up position 1 through position 9.*

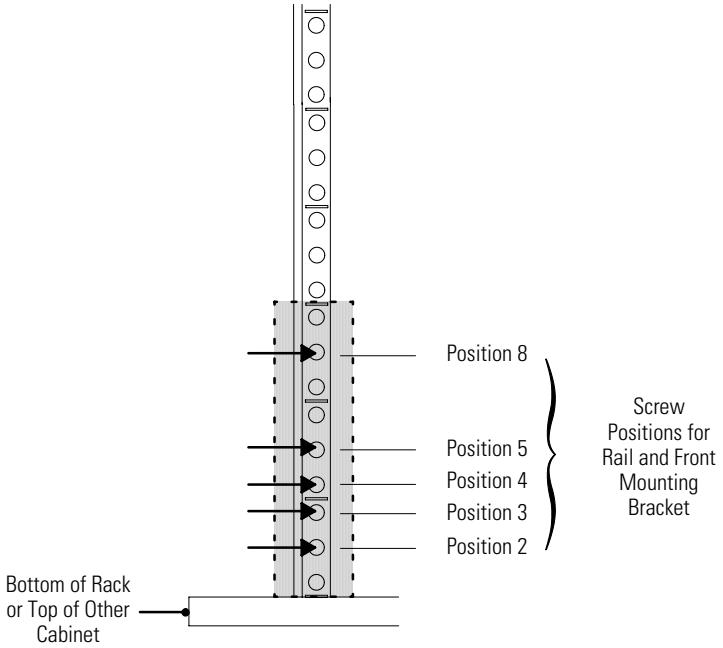

Figure 1. Front Rail Screw Positions for the EBM

2. Using two M5 machine screws and an adapter plate, attach the rail to the front of the rack (see Figure 1 and Figure 2).

   Do not tighten the screws.

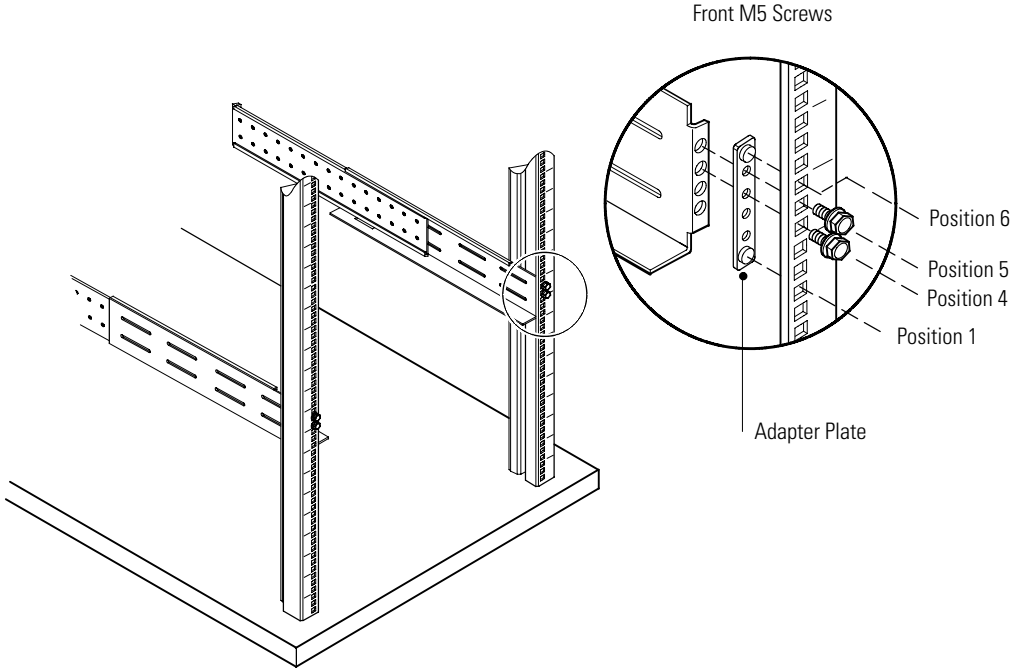

Figure 2. Securing the Front Rail

3. Adjust the rail size on the rail assembly for the depth of your rack (see Figure 3).

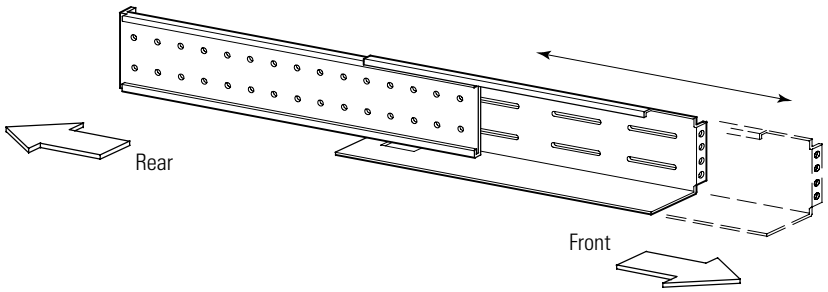

Figure 3. Adjusting the Rail Depth (Right Rail Assembly Shown)

4. Secure the rail to the rear of the rack with four M5 machine screws and an adapter plate (see Figure 4).

Tighten all screws at the front and rear of the rail.

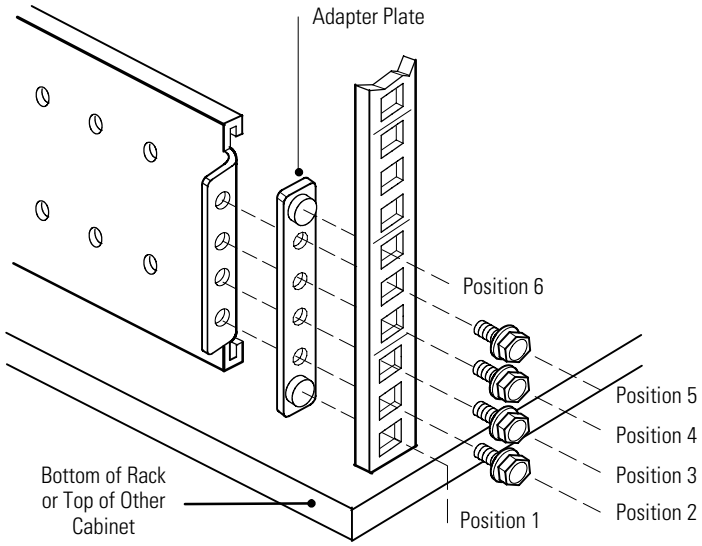

Figure 4. Securing the Rear Rail (Right Rail Assembly Shown)

5. Repeat Steps 2 through 4 for the other rail.

6. To tighten the rail adjustment, assemble four M4 machine screws and four M4 locknuts to the middle of the rail assembly. Tighten using a 7 mm (9/32") nut driver. See Figure 5.

Repeat for the other rail.

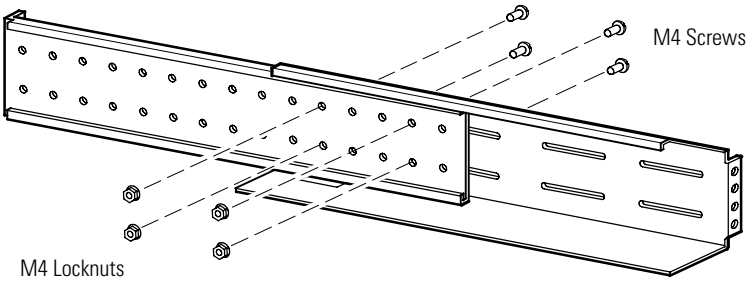

Figure 5. Tightening the Rail Adjustment (Right Rail Assembly Shown)

7. Place the EBM on a flat, stable surface with the front of the EBM facing toward you.

8. If the front and rear mounting brackets are already installed, skip to Step 11. If the brackets are not already installed, continue to Step 9.

9. Align the two front mounting brackets with the screw holes on the sides of the EBM and secure with eight supplied M4 flat-head screws (see Figure 6).

10. Align the two rear mounting brackets with the lowest two screw holes on the sides of the EBM and secure with four supplied M4 flat-head screws.

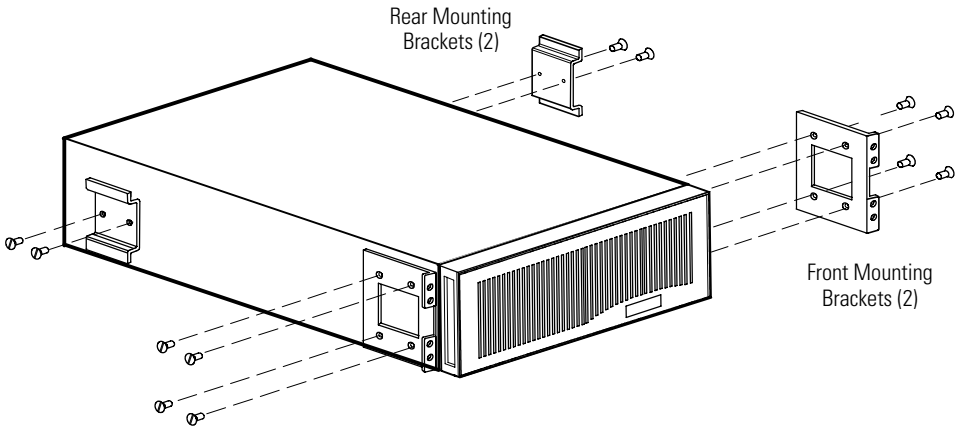

Figure 6. Installing the EBM Front and Rear Mounting Brackets

11. If installing the optional seismic mounting brackets, align the two EBM seismic mounting brackets with the screw holes on the sides of the EBM above the rear mounting brackets. Loosely secure the brackets with four supplied wing bolts. See Figure 7.

Do not tighten the wing bolts.

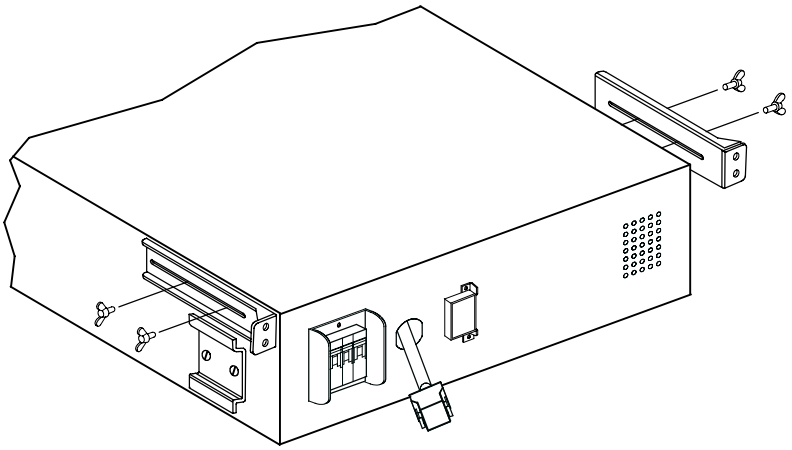

Figure 7. Installing the Optional EBM Seismic Mounting Brackets

12. Slide the EBM into the rack. Verify that the rear mounting brackets engage in and slide easily along the inside of the rails.

13. Secure the front of the cabinet to the rack as shown in Figure 8.

If the rack holes are square, use two cage nuts. If the rack holes are round, use two clip nuts.

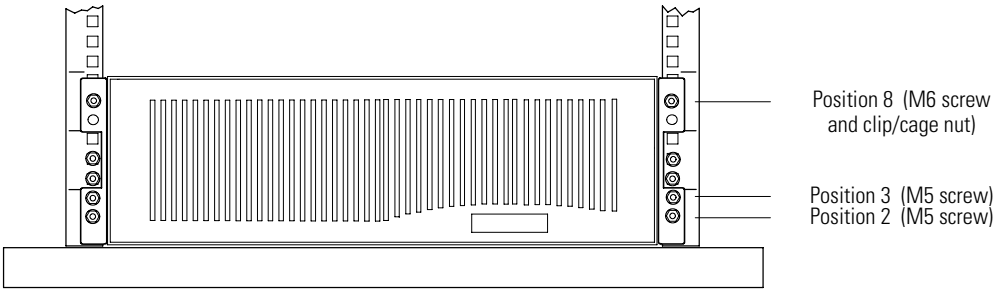

Figure 8. Securing the Front of the EBM

14. If the optional seismic mounting brackets are installed, secure the brackets on the EBM to the rack using four M6 machine screws as shown in Figure 9.

Tighten the wing bolts on the seismic mounting brackets.

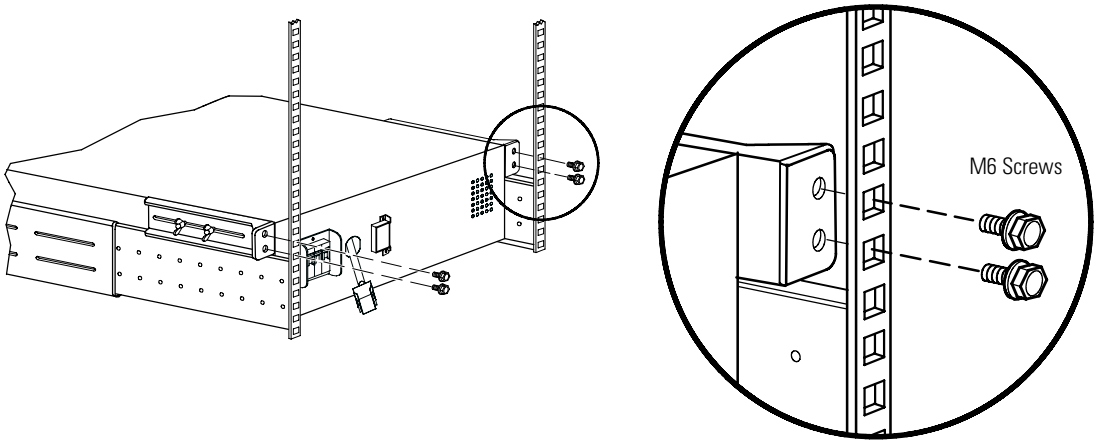

Figure 9. Securing the Optional EBM Seismic Mounting Brackets

Installing the EBM Batteries

To install the battery trays into the EBM cabinet:

1. Verify that the battery circuit breakers on the EBM rear panel are in the OFF (O) position (see Figure 13 on page 26).

2. Remove the EBM front cover (see Figure 10).

   To remove the front cover, loosen the two front cover screws. Grasp the fingergrips on both sides of the cover and pull the cover forward firmly.

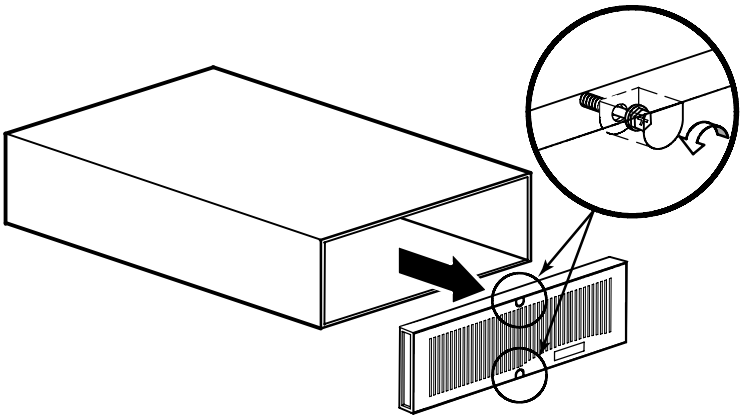

Figure 10. Removing the EBM Front Cover

3. Slide the battery trays into the cabinet (see Figure 11). Push each tray in until the battery tray lock on the handle catches to lock the tray in place.

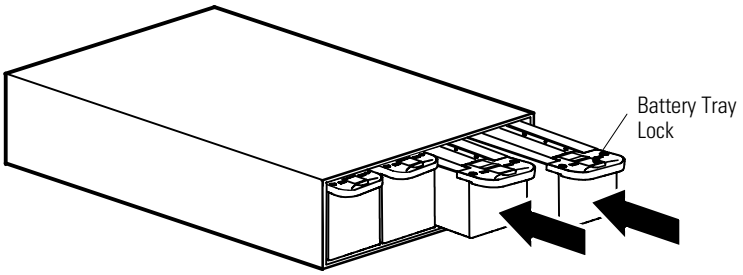

Figure 11. Installing the Battery Trays

4. Replace the EBM front cover and tighten the two front cover screws (see Figure 12).

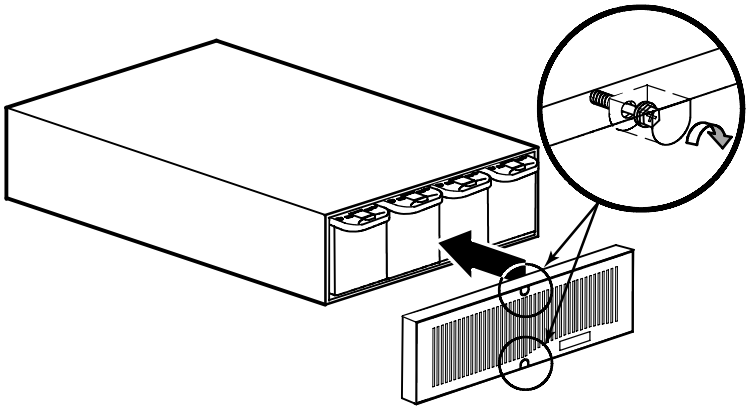

Figure 12. Replacing the EBM Front Cover

5. Continue to the following section, "EBM Installation."

EBM Installation

CAUTION

A small amount of arcing may occur when connecting an EBM to the UPS. This is normal and will not harm personnel. Insert the EBM cable into the UPS battery connector quickly and firmly.

To install the EBM(s):

1. Verify that all battery circuit breakers are in the OFF (O) position (see Figure 13).
2. Remove the cable retention clip from the UPS battery connector. Retain the clip and two screws.
3. Remove the cable retention clip from all EBM battery connectors except on the EBM installed in the lowest position in the rack. Retain the clips and screws.
4. Plug the EBM cable(s) into the battery connector(s) as shown in Figure 13. Up to four EBMs may be connected to the UPS.

5. Turn each cable retention clip 90 degrees and reinstall each clip to hold the EBM cable firmly in place.

6. Ensure maximum battery runtime by configuring the UPS for the correct number of EBMs (see page 27).

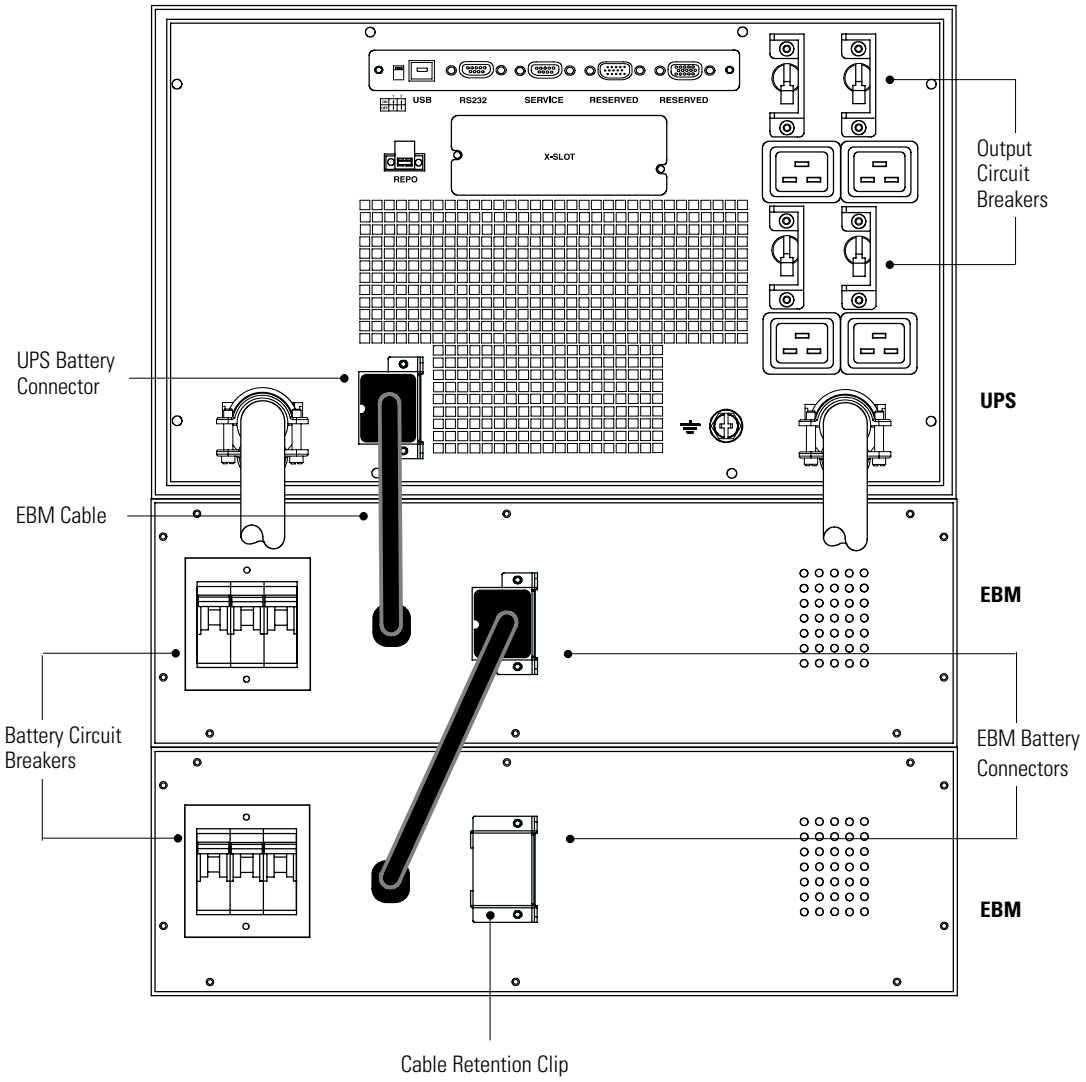

Figure 13. Typical EBM Installation

Chapter 3 Operation

This chapter contains information on how to configure the UPS for Extended Battery Modules (EBMs) and initiate the battery test.

Configuring the UPS for EBMs

To ensure maximum battery runtime, configure the UPS for the correct number of EBMs:

1. Select MENU from the UPS system status screen, then select SETUP, USER SETUP, and BATTERY PACK.
2. Use the ▲ or ▼ button to select the number of battery packs in your UPS configuration:

All UPS and EBM Cabinets	Number of Battery Packs
UPS + 1 EBM	2
UPS + 2 EBMs	3
UPS + 3 EBMs	4
UPS + 4 EBMs	5

3. Press the ↵ button to save the setting.
4. Press the **ESC** button until the system status screen appears.

Initiating the Battery Test

NOTE *The batteries must be fully charged and the UPS must not be in Battery mode to perform the battery test.*

NOTE *For an accurate battery test, test the UPS with at least 10% load applied to the UPS.*

You can configure the battery test settings, initiate a test, cancel a test, and view the test report.

Configuring the Battery Test. The UPS automatically performs a battery test every 7 to 90 days (user selectable) if this option is enabled. To enable or disable the automatic battery test and to select the test frequency and length, select MENU from the system status screen, then select SETUP, USER SETUP, and BATTERY TEST. Select to enable or disable the automatic test, choose a test period (7 to 90 days), and choose the test time (1 to 99 minutes).

Initiating a Battery Test. To initiate a manual battery test, select MENU from the system status screen, then select CONTROL, BATTERY TEST, and SCHEDULE TEST. The UPS verifies the battery converter and schedules the battery test to occur during the next appropriate stage in the charging cycle (or immediately if possible). During the battery test, the indicator flashes rapidly.

Canceling a Battery Test. To cancel a test already scheduled, select MENU from the system status screen, then select CONTROL, BATTERY TEST, and CANCEL TEST.

Viewing the Battery Test Report. To view a report of the latest battery test, select MENU from the system status screen, then select CONTROL, BATTERY TEST, and TEST REPORT.

Chapter 4 Maintenance

This section explains how to:

- Care for the UPS and batteries
- Replace the EBM batteries
- Test new batteries
- Recycle used batteries or UPS

UPS and Battery Care

For the best preventive maintenance, keep the area around the UPS clean and dust-free. If the atmosphere is very dusty, clean the outside of the system with a vacuum cleaner.

For full battery life, keep the UPS at an ambient temperature of 25°C (77°F).

NOTE *The batteries in the UPS are rated for a 3–5 year service life. The length of service life varies, depending on the frequency of usage and ambient temperature. Batteries used beyond expected service life will often have severely reduced runtimes. Replace batteries at least every 5 years to keep units running at peak efficiency.*

Storing the UPS and Batteries

If you store the UPS for a long period, recharge the battery every 6 months by connecting the UPS to utility power. The batteries charge to 80% capacity in less than 5 hours. However, it is recommended that the batteries charge for 48 hours after long-term storage.

Check the battery recharge date on the shipping carton label. If the date has expired and the batteries were never recharged, do not use the UPS. Contact your service representative.

When to Replace Batteries

When the indicator flashes slowly and the audible alarm beeps intermittently, the batteries may need replacing. Contact your service representative to order new batteries.

Replacing Batteries

NOTE *DO NOT DISCONNECT the batteries while the UPS is in Battery mode.*

Batteries can be replaced easily without turning the UPS off or disconnecting the load.

If you prefer to remove input power to change the batteries, see "Turning the UPS Off" in the UPS user's guide.

Consider all warnings, cautions, and notes before replacing batteries.

WARNING

- Servicing should be performed by qualified service personnel knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.
- Batteries can present a risk of electrical shock or burn from high short circuit current. The following precautions should be observed: 1) Remove watches, rings, or other metal objects; 2) Use tools with insulated handles; 3) Do not lay tools or metal parts on top of batteries; 4) Disconnect charging source prior to connecting or disconnecting battery terminals; 5) Wear rubber gloves and boots.
- When replacing batteries, replace with the same type and number of batteries or battery packs. Contact your service representative to order new batteries.
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Never dispose of batteries in a fire. Batteries may explode when exposed to flame.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes and may be extremely toxic.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury.

How to Replace EBM Batteries

To replace the EBM batteries:

1. Switch all battery circuit breakers to the OFF (O) position (see Figure 13 on page 26).
2. Remove the cable retention clip and screws and unplug the EBM cable from the UPS.

   If additional EBMs are installed, remove the cable retention clip and screws and unplug the EBM cable from the battery connector on each EBM.
3. Remove the EBM front cover (see Figure 14).

   To remove the front cover, loosen the two front cover screws. Grasp the fingergrips on both sides of the cover and pull the cover forward firmly.

CAUTION

Pull the battery trays out onto a flat, stable surface. The battery trays are unsupported when you pull them out of the EBM.

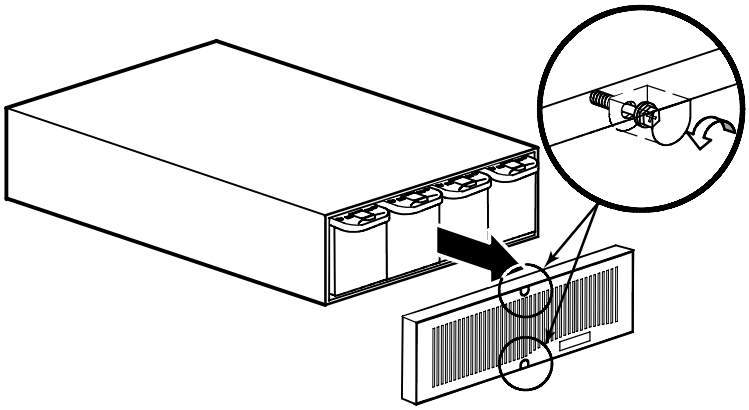

Figure 14. Removing the EBM Front Cover

4. Push down and hold the battery tray lock to unlock the tray. Pull the battery tray slowly out onto a flat, stable surface; use two hands to support the tray.

   Repeat for each battery tray in the cabinet. See "Recycling the Used Battery or UPS" on page 34 for proper disposal.

5. Slide the new battery trays into the EBM cabinet (see Figure 15). Push each tray in until the battery tray lock on the handle catches to lock the tray in place.

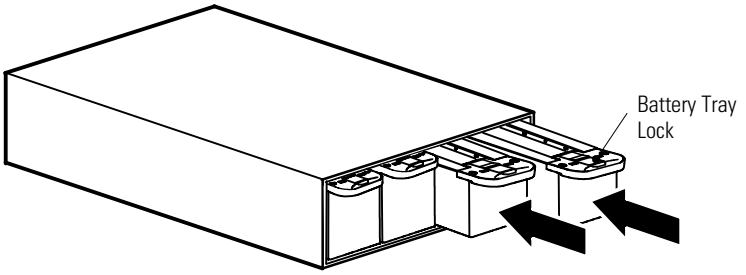

Figure 15. Installing the Battery Trays

6. Replace the EBM front cover (see Figure 16) and tighten the two front cover screws.

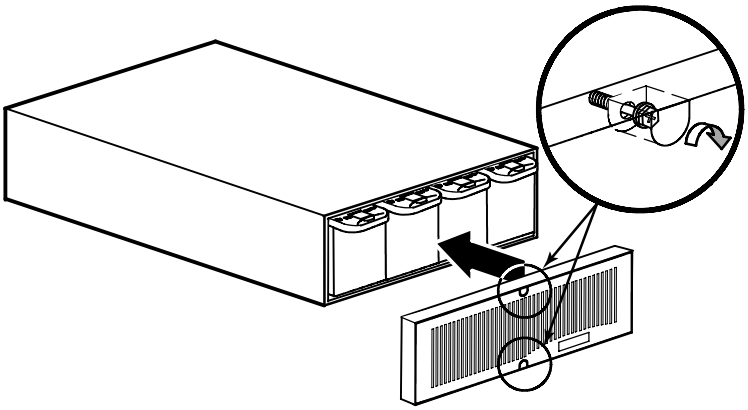

Figure 16. Replacing the EBM Front Cover

7. Repeat Steps 3 through 6 for each EBM.
8. Plug the EBM into the UPS as shown in Figure 13 on page 26.

   For additional EBMs, plug the EBM cable into the battery connector on the adjacent EBM.
9. Reinstall the cable retention clip(s) and screws to hold the EBM cable(s) firmly in place.
10. Switch all battery circuit breakers to the ON (|) position.

Testing New Batteries

NOTE *The batteries must be fully charged and the UPS must not be in Battery mode to perform the battery test.*

NOTE *For an accurate battery test, test the UPS with at least 10% load applied to the UPS.*

To test the new batteries:

1. Plug the UPS into a power outlet (apply utility power on hardwired models) for 48 hours to charge the battery.
2. After charging the battery, select MENU from the system status screen, then select CONTROL, BATTERY TEST, and SCHEDULE TEST.

   The UPS verifies the battery converter and schedules the battery test to occur during the next appropriate stage in the charging cycle (or immediately if possible).

   During the battery test, the indicator flashes rapidly.
3. To view a report of the latest scheduled battery test, select MENU from the system status screen, then select CONTROL, BATTERY TEST, and TEST REPORT.

Recycling the Used Battery or UPS

Contact your local recycling or hazardous waste center for information on proper disposal of the used battery or UPS.

WARNING

- Do not dispose of the battery or batteries in a fire. Batteries may explode. Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

CAUTION

Do not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead-acid batteries and must be disposed of properly. For more information, contact your local recycling/reuse or hazardous waste center.

CAUTION

Do not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

Chapter 5 Service and Support

If you have any questions or problems with the UPS, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a UPS technical representative.

United States:	**1-800-356-5737** or **1-919-870-3149**
Canada:	**1-800-461-9166 ext 260**
All other countries:	**Call your local service representative**

Please have the following information ready when you call the Help Desk:

- Model number
- Serial number
- Version number (if available)
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.

NOTE *For critical applications, immediate replacement may be available. Call the* ***Help Desk*** *for the dealer or distributor nearest you.*

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